

Names Inc. ERD

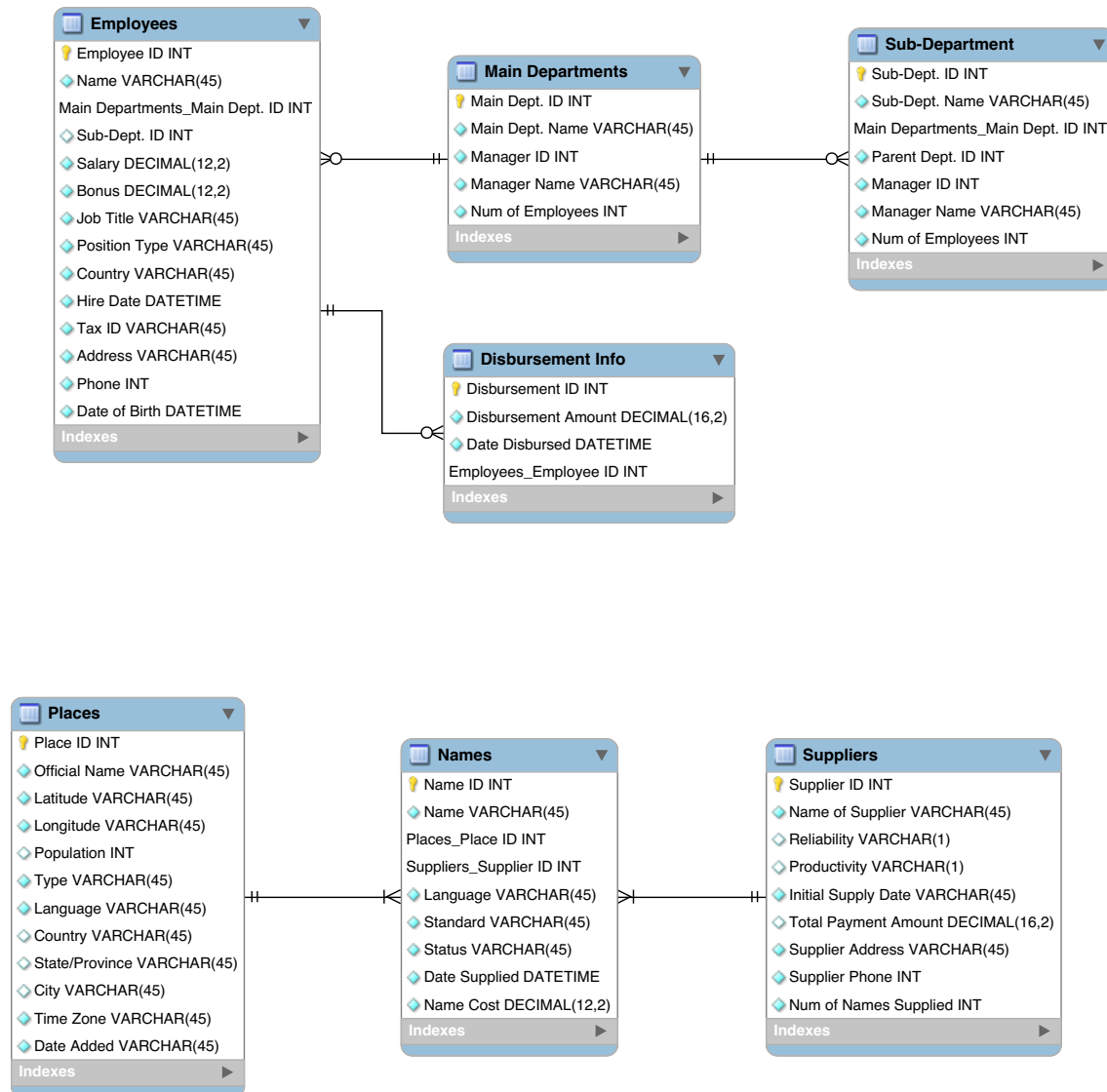


Diagram notes:

- Key icons represent primary keys
- Filled diamonds represent fields that do not allow null values.
- Empty diamonds represent fields that allow null values.
- Attributes with no icon are foreign keys.

Overview

The database has two main groups. One group holds HR information. The other group holds information about places and name suppliers. These groups are not connected. However, the tables within a given group are connected to each other.

Group 1 – HR Information

There are three tables in this group: Employees, Main Departments, and Sub-Departments.

Relationships

There are zero to many employees per main department, and there is exactly one main department per employee.

There are zero to many sub-departments per main department, and there is exactly one main department per sub-department.

There are zero to many disbursements per employee, and there is exactly employee per disbursement.

Employee Table

The Employee table holds information about each employee. The primary key is a unique Employee ID number. It also contains a foreign key, which is the ID of the main department they work for. Other fields in the table include Salary, Bonus, Sub Dept. ID, Job Title, Job Type, and several others. The Job Type field can be Executive, Manager, AA, or Other (to indicate “normal” employees). Only the Sub Dept. ID field is allowed to contain null values since it’s possible for an employee to not work for a sub department.

Main Departments

The Main Departments table uses a unique Main Dept. ID as the primary key. Other fields include Dept. Name, Manager ID (unique), Manager Name, and the number of employees working in the department. No fields in this table can have null values.

Sub-Departments

The Sub-Departments table uses a unique Sub-Dept. ID as the primary key. It also has the unique Main Dept. ID as a foreign key to identify its parent department. A unique Parent Dept. ID is in this table to indicate what department is directly above it. It’s possible for Parent Dept.

ID to be the same as the Main Dept. ID foreign key. This means the parent department is the main department. Other fields include the unique Manager ID, Manager Name, and the number of employees working for the sub-department. No fields in this table can have null values.

Disbursement Info

Since this database is not concerned with customer and pricing information, the Disbursement Info table only records employee salary and bonus disbursement information. The unique primary key is the Disbursement ID. The Employee ID is a unique foreign key that identifies which employee is receiving the disbursement. The Disbursement Amount and Disbursement Date are also provided. None of these fields can contain null values.

Accessibility

HR has access to each table. Only qualified HR employees can make changes to these tables.

Managers and executives have partial access to the Employees table. They can access employees who work for their department. Managers can edit bonus information for AA's and "Other" employees in the department they manage. Executives can do the same, but they can also edit the manager's bonus information. Executives are considered to be managers as well. Each manager cannot access the department they work for, but they can access the department they manage. Only the CEO can access the department they work for (the Executives department). The CEO is in charge of editing other executives' bonus information.

Executives can also generate a count of the employees (employee totals). This count can be the total for the whole company, or it can be broken down by department.

Only executives have access to the Disbursement Info table.

Group 2 – Names and Places Information

There are three main tables: Places, Names, and Suppliers.

Relationships

There is exactly one place per name, and one to many names per place. In other words, a place can have many different names, but a given unique name ID refers to only one place.

There is exactly one supplier per unique name ID, and there are one to many unique name ID's per supplier. It's important to note that the Names table can contain duplicate names, but it cannot contain duplicate unique name ID's that refer to different places. When taking duplicate names into account, we can conclude that a name can have many suppliers, and a supplier can

have many names. However, we do not declare a many-to-many relationship since the primary key in the names table is a unique Name ID that can have only one supplier.

Places

The primary key is a unique Place ID. A place must have at least one name, and one of the names is used as the Official Name. The place's latitude and longitude are required. Population can be null. A null population will point out inhabitable places, while a population of 0 will mean someone can live there, but no one currently is. The type of place is required (park, city, airport, etc.). Language (of the official name), Date Added, and Time Zone are also required. Country, State/Province, and City can be provided, but they are not required since they may be irrelevant to some places (the middle of the ocean).

Names

The Names table has a unique Name ID as the primary key. A unique foreign key is the Place ID which identifies the place that the name is referring to. Another unique foreign key is Supplier ID, which indicates who supplied this name. Other fields include Name, Language, Standard, Date Supplied, Name Cost, and Status (official, historic, obsolete, colloquial, etc.). No fields are allowed to have a null value. Duplicate Name values are allowed in this table, but their Name ID must be unique.

Suppliers

The Suppliers table has a unique Supplier ID as the primary key. Other fields include Supplier Name, Reliability, Productivity, Initial Supply Date, Total Payment Amount, the number of names supplied, and contact information. The Reliability and Productivity fields allow null values. These fields allow null values for the chance that the supplier is a new customer whose reliability and productivity has yet to be determined. Reliability and Productivity are simply an A-F score. The Total Payment Amount field is used to record the total amount that has been paid to a supplier. It allows null values in case no payments have been made. All other fields do not allow null values.

Accessibility

Marketing has access to the Places, Names, and Suppliers tables so they can generate monthly statistics.

Executives also have access to these tables so they can generate statistics for monthly increases in the number of names by language. They can also look at the total amount paid to each supplier.